

We claim:

1. A hyperbranched polyester containing ethylenically unsaturated groups and obtainable by reacting

5

- (c) at least one compound having at least one ethylenic double bond

with at least one hyperbranched polyester obtainable by condensing

10

- (a) at least one dicarboxylic acid or derivative thereof with at least one at least trifunctional alcohol

or

15

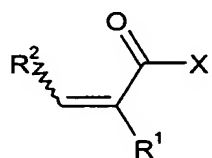
- (b) at least one tricarboxylic or higher polycarboxylic acid or derivative thereof with at least one diol.

2. A hyperbranched polyester containing unsaturated groups as claimed in claim 1, wherein at least one compound having at least one ethylenic double bond is a compound having a terminal double bond.

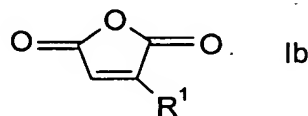
20

3. A hyperbranched polyester containing unsaturated groups as claimed in claim 1 or 2, wherein at least one compound having at least one ethylenic double bond is a compound of the formula Ia or Ib

25



Ia



Ib

where:

- $R^1$  is selected from  $C_1$ - $C_{10}$  alkyl, unbranched or branched, and hydrogen,
  - $R^2$  is selected from  $C_1$ - $C_{10}$  alkyl, unbranched or branched,  $C_2$ - $C_6$  alkenyl,  $COOH$ , and hydrogen,
  - $X$  is selected from halogen and  $OR^3$ , and

30

R<sup>3</sup> is selected from C<sub>1</sub>-C<sub>10</sub> alkyl, unbranched or branched, C<sub>1</sub>-C<sub>10</sub> alkyl, unbranched or branched, with at least one functional group, polyethylene glycol derivatives, polypropylene glycol derivatives, glycidyl, H-CO (formyl), unbranched or branched C<sub>1</sub>-C<sub>10</sub> alkyl-CO, and C<sub>6</sub>-C<sub>10</sub> aryl-CO.

4. A hyperbranched polyester containing unsaturated groups as claimed in claim 1 or 2, wherein at least one compound having at least one ethylenic double bond is selected from

10 unsaturated carboxylic acids having 3 to 30 carbon atoms and from 1 to 5 C-C double bonds.

unsaturated alcohols having 3 to 40 carbon atoms and from 1 to 5 C-C double bonds.

15 unsaturated amines having 3 to 20 carbon atoms and from 1 to 5 C-C double bonds.

diol and polyol ethers in which at least one hydroxyl group is etherified with an unsaturated alcohol and at least one hydroxyl group is unetherified,

diol and polyol esters in which at least one hydroxyl group is esterified with an unsaturated acid and at least one hydroxyl group is unesterified,

20 vinyl esters, diene and triene monoepoxides,

unsaturated halides having 2 to 20 carbon atoms and from 1 to 5 C-C double bonds.

isocyanato (meth)acrylates, and

unsaturated halogenated silanes.

5. A process for preparing a hyperbranched polyester containing unsaturated groups as claimed in any one of claims 1 to 4, which comprises synthesizing at least one hyperbranched polyester by condensing

30 a) at least one dicarboxylic acid or derivative thereof with at least one at least trifunctional alcohol

or

35      b) at least one tricarboxylic or higher polycarboxylic acid or derivative thereof  
with at least one diol.

and then reacting the synthesis product with (c) at least one compound having at least one ethylenically unsaturated double bond.

- 5 6. A process for preparing a hyperbranched polyester containing an unsaturated group as claimed in any one of claims 1 to 4, which comprises synthesizing at least one hyperbranched polyester by condensing

a) at least one dicarboxylic acid or derivative thereof with at least one at least trifunctional alcohol,

10

or

b) at least one tricarboxylic or higher polycarboxylic acid or derivative thereof with at least one diol,

15

in the presence of (c) at least one compound having at least one ethylenically unsaturated double bond.

- 20 7. The use of a hyperbranched polyester containing unsaturated groups as claimed in any one of claims 1 to 4 as a binder.

8. A process for preparing a radiation-curable composition using one or more hyperbranched polyesters containing unsaturated groups as claimed in any one of claims 1 to 4.

25

9. A radiation-curable composition comprising one or more hyperbranched polyesters containing unsaturated groups as claimed in any one of claims 1 to 4.